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EXAMINER	
AMINI, JAVID A	
ART UNIT	**PAPER NUMBER**
2672	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/821,638	SCOTT ET AL.	
	Examiner	Art Unit	
	Javid A. Amini	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-14 and 16-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *May 20, 2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed 5/4/2004 have been fully considered but they are not persuasive.

Applicant on page 10, lines 14-16 argues that the reference Eppler does not teach the claim element of "creating a mathematical georeferencing function for assigning appropriate geographic coordinates to any one of a plurality of pixel locations". Furthermore, Applicant on the same page 10, lines 18-21 divides the mentioned claim element into three separate elements of claim 1. Applicant argues that the Examiner used a single statement to address three separate elements.

Examiner's reply: Sometimes a statement is quite apparent, and it's possible to cover multiple elements. For example: the claim elements are:

a. Creating a mathematical georeferencing function

b. For assigning appropriate geographic coordinates

c. One of a plurality of pixel locations

Analysis of "a-c" sections of the claim elements: Creating a mathematical georeferencing function involves parameters of transformation between the x-y domain and the latitude-longitude domain. Eppler in col. 1 lines 29-32 teaches that parameters can be derived by fitting line and pixel image coordinates (i.e. x-y domain) of salient features, or landmarks, to their known latitude, longitude (i.e. georeferencing domain), and height on the Earth. Also in col. 2 lines 19-23 teaches a list of coordinates for landmark boundary vertices (Examiner's interpretation: more than one point, that is a pair of point) of the corresponding landmark stored

in the database is processed through a mathematical model (Examiner's interpretation: it's similar to mathematical function) of the imaging system to generate absolute coordinates (i.e. assigning geographic coordinates into x-y coordinates of the pixels) of the boundary pixels of the landmark.

Note: In order to overcome the prior arts, Applicant may emphasis on type of mathematical function and how the parameters are assigned to the corresponding locations, on top of all that, what would be the advantages of current method over the prior arts' method?

Applicant on page 11 argues similar to the pervious arguments.

Examiner's reply: Applicant should be studying carefully fig. 4 of Eppler from number 40 to number 50, and showing by attentiveness to all aspects and details of numbers 42-43.

Applicant on page 12 lines 3-11 argues that the Examiner has failed to show a teaching in the references of every element of claim 1.

Examiner's reply: Examiner cited references to Applicant; it's meant Examiner presents the entire information on every page of the cited references.

Applicant on page 12, lines 16-19 argues that the second reference Schipper does not teach the last element of claim 1 that is: revising a mathematical georeferencing function. Meaning modify the mathematical function. Schipper in col. 14 lines 8-12 teaches the b-coefficients b11, b12, b21 and b22 (see equation 95) will change as soon as one or more of the locations of the landmarks L1 and/or L2 changes.

Note: In order to overcome the prior arts, Applicant may emphasis on type of revisions or changes? Because any type changes or revisions considers similar to claim element of claim 1.

Applicant on page 13, lines 3-15 argues that the Examiner fails to show of every element in the dependent claim 11.

Examiner's reply: (repeated) Examiner cited references to Applicant; it's meant Examiner presents the entire information on every page of the cited references. Applicant on page 10 of the specification lines 15-17 discloses that "according to the preferred embodiment, georeferencing function are done by using a "least square" parameter fitting operation. In similar matter, Eppler in col. 6 lines 5-12 teaches the determination by a least-squares fit of landmarks measured on previous images frames. The absolute coordinates of the landmark boundary pixels along with the absolute coordinates of the upper left corner of the image patch are supplied to an upsample and rasterizing algorithm 22 which upsamples (magnifies) and rasterizes the boundary and area of the candidate landmark (see fig. 2 steps 22-23).

Also the second reference Schipper in col. 13 lines 33-45 teaches the absolute minimum solution for the location coordinates of the "center" (x0,y0) of the linear transformation and the transformation coordinates a11, a12, a21 and a22 that provides the "best possible" transformation (in the least squares sense) in carrying the LDS-determined landmark locations (xi,yi) into the landmark locations (xi',yi') on the old map. The user location coordinates (xu',yu') on the old map are then determined by the equations.

Applicant on page 13 lines 8-9 argues that the Examiner has not alleged any teaching of rejecting a point pair.

Examiner's reply: Schipper in col. 13 lines 33-45 teaches the absolute minimum solution for the location coordinates of the "center" (x0,y0) (i.e. a pair point) of the linear transformation and the transformation coordinates a11, a12, a21 and a22 that provides the "best possible"

transformation (in the least squares sense) in carrying the LDS-determined landmark locations (xi,yi) (i.e. a pair point) into the landmark locations (xi',yi') (i.e. a pair point) on the old map. The user location coordinates (xu',yu') (i.e. a pair point) on the old map are then determined by the equations.

Examiner rejects the new claim 22 that dependents to claim 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-14, and 16-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Eppler US patent 6,084,989, and further in view of Schipper US patent 5,815,118.

1. As per claim 1, Eppler discloses in (Col. 2, lines 6-12). A disclosed method that automatically determines line and pixel coordinates (longitude coordinate and a latitude coordinate) of landmarks in the digitized image (also can be a scanned map image) with sub pixel accuracy (the first map being a digital raster map, and the second map being a previously georeferenced map), as for "the first map being a digital raster map, having a plurality of pixel locations, and the second map being a previously georeferenced map, having associated geographic coordinates, wherein the first map is similar to the second map, each pixel location includes an associated x-coordinate and y-coordinate, and each geographic coordinate includes an associated longitude coordinate and an associated latitude coordinate;". The system and method use landmarks (can be shown by points on the map in reference to the same

area on other map coordinates) in symbolic form, and in particular, perimeters of lakes and islands, derived from precise cartographic source materials, as for "receiving an entry identifying a first point pair, wherein a first pixel location on the first map is associated with a first geographic coordinate on the second map and the first pixel location is located at a position on the first map analogous to the first geographic coordinate on the second map; receiving an entry identifying a second point pair, wherein a second pixel location on the first map is associated with a second geographic coordinate on the second map and the second pixel location is located at a position on the first map analogous to the second geographic coordinate on the second map". When assigning points on the two similar maps, it is very obvious that the coordinates and parameters are must have the same values, as for "assigning to the first pixel location the longitude coordinate and the latitude coordinate associated with the first geographic coordinate; assigning to the second pixel location the longitude coordinate and the latitude coordinate associated with the second geographic coordinate; and creating a mathematical georeferencing function for assigning appropriate geographic coordinates to any one of the plurality of pixel locations; and revising the mathematical georeferencing function when a new point pair is received". The current system is capable of displaying more than one image (raster/vector images) see Fig. 3. An entry identifying a point on the first map will be the identical to a point on the second map. Eppler does not explicitly specify displaying a first map and a second map, however, Eppler on col. 1, lines 43-53 recognizes that in the past, the position of a landmarks in a digitized images was automatically determined using reference images derived from previously acquired digitized images containing the landmark that were matched to the landmark in the currently processed digitized image. This approach has two problems (similar to Applicant's invention). The exact position of the reference image was not known with subpixel accuracy. Also, several different reference images were needed to match landmarks contained in the currently processed image when the reference images were obtained under different diurnal and seasonal conditions. On the

other hand Schipper in the abstract teaches first and second maps. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Schipper into Eppler in order to satisfy the Applicant's invention. Since the accuracy is an important factor in Applicant's invention, therefore, the combination of Schipper and Eppler inventions would provide a proper analysis to evaluate the accuracy of the two inventions. And also a person skilled in the art would spend less time and money to accomplish what the Applicant's invention is claimed.

2. As per claims 2 and 3, Eppler discloses in Fig. 3 a vector and digital raster maps, and also it can be called first, second, third and etc maps on the display, as for "the second map is a vector map and also can be a digital raster map".

3. As per claim 4, Eppler discloses in (Col. 1, lines 43-53) that in the past, the position of a landmarks in a digitized images was automatically determined using reference images derived from previously acquired digitized images containing the landmark that were matched to the landmark (determined longitude and latitude coordinates according to the landmark, landmark can be a mountains, lake, desert, city and etc.) in the currently processed digitized image. As for "previously determined longitude and latitude".

4. As per claims 6-7, Eppler discloses in (Col. 2, lines 28-39), and the georeferencing functions are linear transformation see equations in columns 7-13. And also it is inherent to display the results of a user's requests that create a georeferencing function. As for "creates a georeferencing function" and "georeferencing function is a linear transformation".

5. As per claims 8-10, Eppler discloses in Fig. 2 box numbers 26, 27 and 20 which contain the list of three (or more) point boundary vertices since Eppler using a model. See Fig. 4 box 42 for more referencing functions, as for "three-four point pairs to complete the georeferencing function".

6. As per claims 11 and 12, Eppler discloses in Fig. 4, box 50 image matching algorithms to determine standard error.

7. As per claim 13, Eppler discloses in Fig. 4, box 44 that reading out the points of the second map that corresponds to the selected area in the first map. As for " selection of a point on the first map, and receiving a selection of a point on the second map".

8. As per claim 14, Eppler discloses in (Col. 2, lines 6-12). A disclosed method that automatically determines line and pixel coordinates of landmarks in the digitized image (also can be a scanned map image) with sub pixel accuracy. The system and method use landmarks in symbolic form, and in particular, perimeters of lakes and islands, derived from precise cartographic source materials. The current system is capable of displaying more than one image (raster/vector images) see Fig. 3. Also refer to rejection of independent claim 1. Eppler does not explicitly specify displaying a first map and a second map, however, Eppler on col. 1, lines 43-53 recognizes that in the past, the position of a landmarks in a digitized images was automatically determined using reference images derived from previously acquired digitized images containing the landmark that were matched to the landmark in the currently processed digitized image. This approach has two problems (similar to Applicant's invention). The exact position of the reference image was not known with subpixel accuracy. Also, several different reference images were needed to match landmarks contained in the currently processed image when the reference images were obtained under different diurnal and seasonal conditions. On the other hand Schipper in the abstract teaches first and second maps. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Schipper into Eppler in order to satisfy the Applicant's invention. Since the accuracy

is an important factor in Applicant's invention, therefore, the combination of Schipper and Eppler inventions would provide a proper analysis to evaluate the accuracy of the two inventions. And also a person skilled in the art would spend less time and money to accomplish what the Applicant's invention is claimed.

9. As per claim 16, Eppler discloses in (Col. 2, lines 28-39), and the georeferencing functions are linear transformation see equations in columns 7-13. And also it is inherent to display the results of a user's requests, as for "creates a georeferencing function" and georeferencing function is a linear transformation".

10. As per claims 17, Eppler discloses in Fig. 2 box numbers 26, 27 and 20 which contain the list of three (or more) point boundary vertices since Eppler using a model. See Fig. 4 box 42 for more referencing functions, as for "four point pairs to complete the georeferencing function".

11. As per claim 18, Eppler discloses in Fig. 4, box 50 image matching algorithms to determine standard error.

12. As per claim 19, Eppler discloses in (Col. 2, lines 6-12). A disclosed method that automatically determines line and pixel coordinates of landmarks in the digitized image (also can be a scanned map image) with sub pixel accuracy. The system and method use landmarks in symbolic form, and in particular, perimeters of lakes and islands, derived from precise cartographic source materials. The current system is capable of displaying more than one image (raster/vector images) see Fig. 3. Also refer to rejection of independent claim 1. Eppler does not explicitly specify displaying a first map and a second map, however, Eppler on col. 1, lines 43-53 recognizes that in the past, the position of a landmarks in a digitized images was automatically determined using reference images derived from previously acquired digitized

images containing the landmark that were matched to the landmark in the currently processed digitized image. This approach has two problems (similar to Applicant's invention). The exact position of the reference image was not known with subpixel accuracy. Also, several different reference images were needed to match landmarks contained in the currently processed image when the reference images were obtained under different diurnal and seasonal conditions. On the other hand Schipper in the abstract teaches first and second maps. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Schipper into Eppler in order to satisfy the Applicant's invention. Since the accuracy is an important factor in Applicant's invention, therefore, the combination of Schipper and Eppler inventions would provide a proper analysis to evaluate the accuracy of the two inventions. And also a person skilled in the art would spend less time and money to accomplish what the Applicant's invention is claimed.

13. As per claim 20, Eppler discloses in Fig. 2 box numbers 26, 27 and 20 which contain the list of three (or more) point boundary vertices since Eppler using a model. See Fig. 4 box 42 for more referencing functions. Also Eppler discloses in Fig. 4, box 50 image matching algorithms to determine standard error.

14. As per Claims 21-22, Schipper in col. 13 lines 33-45 teaches the absolute minimum solution for the location coordinates of the "center" (x0,y0) (i.e. a pair point) of the linear transformation and the transformation coordinates a11, a12, a21 and a22 that provides the "best possible" transformation (in the least squares sense) in carrying the LDS-determined landmark locations (xi,yi) (i.e. a pair point) into the landmark locations (xi',yi') (i.e. a pair point) on the old map. The user location coordinates (xu',yu') (i.e. a pair point) on the old map are then

determined by the equations. Schipper illustrates in Figs. 3-6 and 9 a polygon, formed by the outline of point pairs.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A. Amini whose telephone number is 571-272-7654. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEFFERY BRIER
PRIMARY EXAMINER

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